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ABSTRACT

This report describes an investigation of the effect of teaching library and research skills using the "Pooh Step-by-Step Guide for Writing the Research Paper" on the performance of fourth grade students on the reference materials portion of the SRA (Science Research Associates) Achievement Series tests. The random selection of two cluster samplings, Group A (N=23) and Group B (n-23), from five average fourth-grade reading groups at Lieder Elementary School (Houston, Texas) is discussed, and the design of the study is described. Group A received instruction on process-oriented research over a six-week period using the "Pooh Step-by-Step Guide," which requires the production of a finished research paper, while Group B received instruction on individual research skills as separate entities. An analysis of scores on a subsequent SRA Achievement Test indicates that Group A scored significantly higher on the research skills portion than Group B, and it is concluded that the educational system would be enhanced if library and research skills were taught as a foundation rather than as an addendum to curriculum. Statistical analyses of test score results are presented in five tables and one figure; and the request for authorization to use SRA scores and the "Pooh Step-by-Step Guide" are appended. A 23-item bibliography is also included. (KM)

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THE EFFECT OF TEACHING LIBRARY SKILLS USING "THE POOH STEP-BY-STEP GUIDE FOR WRITING THE RESEARCH PAPER" AT LIEDER ELEMENTARY SCHOOL IN THE CYPRESS FAIRBANKS INDEPENDENT SCHOOL DISTRICT

A RESEARCH REPORT

Submitted in Partial Fulfillment Of The Requirements For

MASTER'S SEMINAR 5923

BY

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Prairie View, Texas

1987

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I would like to express my deep appreciation and love to my husband and children for their continued support and encouragement of my pursuit for a masters degree. Their selfless attitude has made it possible and without them I would never have attained my goal.

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Finally, I dedicate this paper to my father, Dr. Sim F. Beam, who never gave up on my ability as a student and participant in education. I have made it with his undying love and confidence living in my heart.

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CHAPTER I

INTRODUCTION

Mastery of library skills on the elementary level has always been an elusive achievement. The curriculum in the Cypress Fairbanks Independent School District (C.F.I.S.D.) requires introduction to research skills at the third grade level with pyramidal skills continuing at each successive grade level. Often teachers are at a loss when leading students through the correct steps of research. Teachers feel restricted by time. As a result, students are often told to go to the library and write a report on their given topic, with no teacher direction. The misguided student meets with frustration and failure, unable to locate information on the research topic. Many times sources are put before the student, only to be disregarded because the student has not learned to read for information and change the material into original words. Students expect media specialists to present a book, magazine or encyclopedia with everything they need organized and placed, just as they require it for their paper. If this organization is not present, the student is not willing to work through the gathered information and draw out facts pertinent to the topic.

Although fourth grade scores on the reference materials test portion of the SRA test are above the national average of 70%, the administrators at Lieder Elementary School in C.F.I.S.D. would like to see students score significantly higher than the national average.

In 1985, the media specialists of the C.F.I.S.D. developed a teaching tool entitled "Pooh's Step-By-Step Guide for Writing the Research Paper." This teaching curriculum includes library skills such as familiarity with reference tools, reading for the main idea, notetaking, developing a bibliography, outlining information, determining topic sentences, summarizing, proofreading, editing, and presenting a finished product. It is the intent of this study to see if implementation of this particular curriculum will help students score significantly higher on the reference materials portion of the SRA test for fourth grade elementary students.

STATEMENT OF THE PROBLEM

The purpose of this study is to investigate the effectiveness of teaching library and research skills with a curriculum entitled the "Pooh Step-By-Step Guide for Writing the Research Paper." Two average on level classes of fourth grade students at Lieder Elementary School in the C.F.I.S.D. will be used in the study. It will be determined if a significant difference occurs, on the reference materials portion of the SRA test, between students taught with the "Pooh Step-By-Step Guide for Writing the Research Paper", and students taught using a traditional method of instruction.

SIGNIFICANCE OF THE PROBLEM

The processes of research and use of library skills are the grounds upon which education builds its theory of learning. Educators strive

to instruct students in absorbing knowledge through their own abilities to seek out information. Many students advance into intermediate, secondary, and collegiate levels of education with a minimal understanding of independent study techniques. Such weaknesses directly affect the academic achievement of students.

With the present state and national focus on education, it is the responsibility of educators to administer research and library skills in the most effective manner possible. Cirricula that offer research techniques must be tested and upgraded to ensure student mastery.

The present information explosion only promises to increase in rate as the future becomes the present. If students of today do not learn how to locate and retrieve the constantly enlarging sum of knowledge, the possibilities of the future will be limited.

HYPOTHESIS

The research hypothesis stated in the null form declares that there will be no significant difference found in test scores between students subjected to the "Pooh Guide for Writing Research" and students taught research using a traditional method of instruction.

DELIMITATION OF THE STUDY

Although research skills are taught from the third grade through the fifth grade at Lieder Elementary School, this study will focus on two cluster samplings randomly selected from five average on level reading groups of fourth grade students attending Lieder Elementary

School during the 1986-1987 school year. Each group will have an approximate size of twenty-five students.

Lieder Elementary School is located at 17003 Keith Harrow Dr., Houston, Texas, in the Cypress Fairbanks Independent School District. The school enrollment is made up of approximately 950 Anglo, Black, Spanish, and Indo-Chinese children. They come from families ranging from upper-lower to lower-upper socioeconomic levels.

DEFINITION OF TERMS

1. research projects - Research projects referred to in this study primarily relate to report writing skills taught students on an elementary school level as opposed to formal research, such as this study exemplifies.
2. SRA Achievement Series - The SRA Achievement Series is the Science Research Associates, Inc. battery of tests for grades K-12. They are non-referenced, standardized tests in basic curriculum areas designed to survey students' general academic achievement. On the elementary level in C.F.I.S.D., this test is given at the second, fourth, and fifth grade levels, in the Spring of each year.
3. Reference Materials test portion - The Reference Materials test portion of the SRA is a forty item subtest that covers such skills as table of contents, guide words, pronunciation key, dictionary use, encyclopedia format, index, card catalog,

research sources, maps, and table interpretation.

4. Pooh's Step-By-Step Guide for Writing the Research Paper - "Pooh's Step-By-Step Guide for Writing the Research Paper" is a district developed curriculum, drawn up by the C.F.I.S.D. media specialists, addressing the skills of report writing and research on the elementary level.

OVERVIEW OF CHAPTERS

The chapters of this study will include an introduction, a review of related literature and research, a design of the study, an analysis of data and findings, and a summary, conclusion and recommendation.

Chapter One presents the statement of the problem, the significance of the problem, the hypothesis, the definition of terms, and an overview of chapters.

Chapter Two covers an in-depth study of related literature and research on the subject of research curriculum in our educational system and its effect on student achievement.

Chapter Three will give a detailed account of the actual study as it is carried out by the researcher. This description will include the procedure, population, sample size, instrument design, description of the instrument, and treatment of the data.

Chapter Four will include analysis of the data and findings resulting from the study. A statistical outcome will be presented.

Chapter Five will conclude the study with a summary, conclusion and recommendation based on the findings of the study.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

INTRODUCTION

A review of related literature offers the opportunity to sight articles and studies that pertain to the importance of library skills in today's educational system. In reviewing literature, a focus on present-day education, media center value, instructional methods, and reasons for curriculum development are discussed. In sighting related research the impact of library skills on academic achievement can be investigated to suggest possible outcomes to this study.

REVIEW OF RELATED LITERATURE AND RESEARCH

Education has been under close scrutiny over the past ten years. Committee studies have produced alarming statistics. Accountability has become a major educational factor and test scores have been highly rated in determining student academic achievement (Selden, 1985).

The National Commission on Excellence in Education (1983), charged with identifying the major problems in American education, published a report entitled A Nation At Risk. Statistics stated in the report follow: American students were never rated first or second in academic achievement, 23 million American adults were found to be functionally illiterate, the average achievement for high school students was lower than 28 years prior to the study, SAT scores were found to be declining and overall weaknesses were seen throughout the educational

system. Findings such as these have focused public attention on schools, teachers, administrators, school districts, and state governments.

Within this framework, the importance of library access and instruction has been sighted as being of great importance to education. "Clearly, the library offers great reinforcement and individualization of instruction in all academic subjects. Library service is not an optional enrichment component. It addresses itself to basic literacy" (Marchant, Broadway, Robinson and Shields, 19[illegible], p.20).

Use and control of information will be key factors in the success of today's students in tomorrow's world (Battey, 1981). The basis to education is the goal of teaching students to learn how to learn. "It has been said that the mark of an educated man is not his ability to recall answers to specific questions but his ability to recall and utilize sources that will provide answers to questions or give clues to answers" (Davies, 1979, p.303). When teaching students how to learn, the media center must help through instruction of independent use of materials. Library skills instruction is an activity in support of that purpose (Wehmeyer, 1976).

The role of media centers and media specialists is gaining in importance as education realizes that the schools responsibility is to teach students the skills to cope with change and ever-increasing complexity. To complicate the changes further, the component of speed with which the changes occur must be considered (Jones, 1982). The information explosion is ongoing and moving faster each day. If students do not know the basic elements of library skills and how to

apply them, they will be unable to access the volumes of knowledge available to them.

In another study, Mancall (1985) sighted that "knowledge of library skills can be related to the improvement of student achievement, performance on standardized tests, and grade point average" (p.33). The researcher goes on to say "the level of library media service can be related to knowledge of library skills, overall educational achievement and achievement on specific subject areas" (p.33-34).

As educational budgets have been cut and funding reduced, many school systems have reduced library services. "Nationwide, the SAT verbal scores of high school students dropped at an alarming rate during the years in which funding for libraries declined" (Marchant et al., 1984, p.20). Most school systems now support a library program to enhance academic curricula.

Regardless of these provisions Kuhlthau (1985) states, "elementary and high school librarians have been conscientiously teaching library skills to their students. Academic librarians, however, continue to find that incoming students have difficulty using the library for their research assignments. There is an epidemic in library illiteracy" (p.35). Librarians are failing to fulfill their media center philosophies.

> A resource center should aid in the development of the abilities and knowledge of the students and teachers in conjunction with classroom experiences and individual interests. It should introduce students to the concept of life-long learning. Students should learn how information in its varied formats can be retrieved for use. A comprehensive program of instruction

in the use of these resources is essential (Battey, 1981, p.1).

It has been found that increased interaction with the media specialist develops student confidence in library use and study skill application (Schon, Hopkins, K., Everett & Hopkins, B., 1984). Success of future instruction depends upon the joint efforts of all educational components. Media centers must be established and media specialists must develop and teach materials necessary for student success in applied library skills.

Although philosophies of media centers state the desired outcome of library use, the actual implementation and success of these programs seems difficult to attain. New essential element requirements of Texas House Bill 72 as well as high expectations of the Cypress Fairbanks Independent School District (C.F.I.S.D.) have brought about the active role of the medial specialist in the C.F.I.S.D. Curriculum design and development are of high priority and over the past ten years several instructional aids have been developed to help teachers instruct students in library skills. As stated by George (1981), there is a strong need for librarians to examine and update instructional programs; to improve achievement, retention, and application of library skills.

In an article by Farrar and Flakus-Mosqueda (1986), schoolwide improvement programs are promoted. It is recommended that curricular need be identified on a local district or school level with the involvement of the entire professional staff. By setting universal goals and establishing needed programs, student need is met with joint endeavors. Such has been the goal of the C.F.I.S.D. media specialists.

Conflicting with these goals is the common complaint of classroom teachers that there is not enough time to teach research, report writing, and related library skills. Many teachers perceive these activities as separate from required content. Teachers constantly complain of a lack of time, administrators constantly call for time on task and states constantly establish new content guidelines to be mastered (Berliner & Pinero, 1984).

Research shows that many differences exist between schools and classes as to how much time is spent on each subject. Recommendations of extended days and longer school years have been promoted. However, Justiz (1984) explains that "how one learns determines both the quantity and the quality of what one learns, regardless of the time spent on the task" (p.6). Just because a student is given more time to study does not mean that more learning is taking place (Strother, 1984).

The solution seems to be in training teachers to overview required content and incorporate skills to reinforce one another. Research is helpful in that it implements an interdisciplinary approach to learning. "Adaptive instruction can be defined conceptually as the use of alternative instructional strategies and school resources to provide learning experiences that meet the different needs of individual students" (Bracey, 1984, p.70).

When the "Pooh Step-By-Step Guide for Writing the Research Paper" was developed in 1980, it was the goal of the elementary media specialists in the C.F.I.S.D. that research be taught as an applied skill. Library skills are usually taught as individual tasks and never combined

to complete a process oriented project. Academic librarians feel that the "problem seems to be that most high school students are not being asked to apply and develop their information-seeking abilities. They arrive at college with eroded skills" (Gavryck, 1986, p.22).

Teaching research should begin as soon as a student enters school and begins to ask questions. Answers can be sought as a group or individually. In either case, the skills learned are life long aids to learning (Jacobs, 1987). This approach can be particularly helpful to the gifted and talented students in our school systems. From an early age these students are told to go to the library and write a report, while fellow classmates finish their work. As long as research skills are taught in a step-by-step format, student understanding and comprehension of library skills will be used over and over in the school life of the child (Stockton & Duchateau, 1984).

Process instruction is vital to thorough learning of concepts. In the development of the "Pooh Step-By-Step Guide for Writing the Research Paper," provision of student instruction through sequential application is stressed. Repetition and regular application are essential to permanence in retaining research skills.

Learning to select topics, arrange information, read critically, and revise projects are basic to all phases of learning. Simple activities such as writing in a journal daily or group paraphrasing of anothers work can make the independent process of research much more comfortable (Humes, 1983).

Learning how to be a researcher takes patience and practice.

> The rewards for children are that they begin to become capable, critical students of problems; they learn to be skillful searchers of facts, information and ideas; they learn how to learn (Jacobs, 1987, p.30).

Let it further be validated on Wehmeyer (1976) when he points out that "Piagetian research on children's classification skills suggest that children from age 7 to 11 become capable of understanding multiple hierarchical subdivisions, such as those in the Dewey Decimal Classification, when they are sorting concrete objects, but not yet in the abstract (p.89). The cognitive processes of assimilation and accomodation parallel the instructional steps to research and its application (Kuhlthau, 1985).

Several studies have been completed dealing with research, library skill familiarity, and reference orientation and its effect on academic achievement.

In a study by Gifford, V. and Gifford, J. (1984), two classes of seventh graders were instructed over a two week period. The experimental group was taught library usage, care of books, parts of a book, reference materials, non-fiction books, and card catalog. The control group was taught the standard English curriculum. After two weeks, teachers of each group were asked to assign a report that required use of the library. A significant difference was noted between groups. The experimental group came to the library often with a sense of comfort in material use. The control group did not use the library

as often and did not show confidence in their ability to retrieve information.

Toifel and Wesley (1980) investigated library study skills of children in public schools. They found that "one of the reasons children are performing poorly is because they have never acquired effective study skills" (p.3). The researchers determined that girls were stronger in study skills than boys, students of higher socioeconomic levels scored higher than students of lower socioeconomic levels, and stronger readers scored higher than poorer readers. The research assumption that proficiency in library study skills should be positively related to proficiency in reading and other communication skills seemed to be true.

In a differing outcome, Kerby (1984) found no significant differences in mean scores between students taught with a library skill program and students who were not taught with the program. It appeared that sixth grade students were of equal academic aptitude regardless of the library skill program implemented.

Just as Kerby, this study will deal with two groups of students. The experimental group will be taught a process oriented approach to research using the "Pooh Step-By-Step Guide for Writing the Research Paper." The control group will be taught research in a traditional manner. Scores on the reference materials portion of the SRA test will be collected for the two groups. The existence of a significant difference in scores will be accepted or denied. The

review of literature shows a strong belief that a high correlation exists between research, library skills, academic achievement, and ones ability to grow in today's world of ever-expanding knowledge.

CHAPTER III

DESIGN OF STUDY

INTRODUCTION

The review of related literature shows that over the past decade, a high correlation between library skills and academic ability has been determined. With this knowledge, the media specialists of the Cypress Fairbanks Independent School District (C.F.I.S.D.) developed several curricular tools to be used by teachers during instruction of research and library techniques. "The Pooh Step-By-Step Guide for Writing the Research Paper" was written in 1980 for use in the C.F.I.S.D. elementary schools. Over the past seven years, this curriculum has been available to teachers at each school. Some have chosen to use it while others have opted to use traditional methods of research instruction.

Due to the tremendous work done in implementing this program and the care given to developing a process oriented curriculum, this researcher decided to conduct a study to determine if the use of this particular piece of curriculum could affect test scores of students taking the reference material section of the SRA Achievement Test Series.

To carry out this experimental study, the researcher worked with two groups. Group A was composed of 23 average on level fourth grade students. Group A was taught research using "The Pooh Step-By-Step Guide for Writing the Research Paper". Group B was composed of 23 average on level fourth grade students. Group B was taught research using the traditional method of instruction.

The purpose of this study is to determine if a significant difference will exist between the two groups on the reference materials portion of the SRA Achievement Test. Permission to conduct this study, using select SRA scores, has been obtained from Mrs. Robbie Sheridan, Principal at Lieder Elementary School (see Appendix A).

PROCEDURE

Over a period of six weeks, during January and February of 1987, Group A was taught research using "The Pooh Step-By-Step Guide for Writing the Research Paper" (see Appendix B). The class met twelve times for an hour each meeting. The step-by-step format of the curriculum was followed carefully and a finished research paper was collected from each student at the final meeting.

During the same time period, Group B was taught the various library skills as separate entities without the cohesion of a group written report. The skills covered included encyclopedia usage, table of contents, index, card catalog, dictionary skills, guide words, and table interpretation.

Group A was taught process oriented research while Group B was taught research through individuals skill instruction.

POPULATION

The population for this study included approximately 150 students that made up the fourth grader enrollment at Lieder Elementary School during the 1986-87 school year. The students are of Anglo, Black, Spanish, and Indo-Chinese descent. The families of the school

community range from the upper-lower to the lower-upper levels of the socioeconomic classes.

In the C.F.I.S.D., the SRA Achievement Test is administered to all second, fourth, and fifth year students in the Spring of each school year. However, fourth grade students were selected to the study because they are the only grade given the reference materials portion of the SRA. The researcher chose to focus on two average on level language arts classes of fourth grade students.

SAMPLE SIZE

Group A consisted of 23 fourth grade students cluster sampled from five average on level language arts classes. Group B was composed of 23 fourth grade students cluster sampled from five average on level language arts classes. The students of both groups are considered academically able and each group displays average study habits.

INSTRUMENT DESIGN

The SRA Achievement Test was given to fourth grade students during the Spring semester, 1987. Test scores on the reference materials portion of this standardized test were used to determine if fourth grade students taught with "The Pooh Step-By-Step Guide for Writing the Research Paper" scored significantly higher than students taught research skills in a traditional manner.

The level of SRA Achievement Test used in the Spring of 1987 was level 34 form P. Content validity and equivalent forms reliability

have been established for the SRA Achievement Test. A detailed description can be found in the Survey of Basic Skills Technical Information Report issued by the SRA Achievement Series Committee, copyright, 1985. National Standardization and Norming were completed for grades K-12 in the Fall of 1983 and the Spring of 1984.

DESCRIPTION OF THE INSTRUMENT

The reference materials portion of the SRA Achievement Test for fourth grade is a 34 item test covering basic library skills and application of those skills. There are questions dealing with table of contents, index, pronunciation key, map usage, guide words, card catalog, table interpretation, and encyclopedia usage. All questions are multiple choice and the student is limited to 25 minutes to complete this section of the test.

TREATMENT OF THE DATA

The SRA Achievement Test scores on the reference materials section will be directly compared using an independent t-test with a .05 probability level. An overall score of the entire reference materials section will be compared first. A break down of academic achievement by particular skill will be shown.

CHAPTER IV

ANALYSIS OF DATA AND FINDINGS

INTRODUCTION

The purpose of this study is to determine if students who are taught library and research skills using the "Pooh Step-by-Step Guide for Writing the Research Paper", show a significant difference in test scores on the reference materials section of the SRA Achievement Test, from those students taught library and research skills using a traditional method of instruction. A total of 46 fourth grade students at Lieder Elementary School were chosen for the study. Out of five average on level language arts classes, two groups were selected through cluster sampling. Each group consisted of 23 students. Group A was taught library and research skills with the "Pooh Step-by-Step Guide for Writing the Research Paper." Group B was taught library and research skills with a traditional method of instruction. Data was collected and analyzed in order to determine if there was a significant difference between the scores of the two groups.

ANALYSIS OF DATA

The fourth grade students involved in this study took the SRA Achievement Test the week of March 9, 1987. The researcher chose to copy the participants answer sheets and hand score the Reference Material Section of the SRA Test in order to break scores down by specific skills. To determine significance in this study, the researcher ran a t-test for Independent Samples.

To apply the t-test, the researcher first listed the overall percentage scores for each member of Group A and each member of Group B. The scores were also squared for later use in computing t. A mode, mean, median, sum of scores, and sum of squared scores was determined for each group (see Tables 1 and 2). The sum of scores was divided by 23 in each group to determine the mean score. Group A had an overall mean score of 83% while Group B had an overall mean score of 73%. This shows a difference of 10%.

The mathematical process of computing t was calculated (see Table 3). After computing the sum of squares for Groups A (X_1) and B (X_2), determining the degrees of freedom, and using the mean scores from Tables 1 and 2, the formula for computed t could be worked through. A level of confidence was set at .05. The Degrees of Freedom were 44. Computed t was 2.21. Table t for df 40 was 2.021. An interpolated Table t of df 44 worked out to be 2.019. Therefore, computed t (2.21) is greater than Table t (2.019) indicating a significant difference between Groups A and B. The stated null hypothesis is rejected.

TABLE 1

SRA Achievement Test scores on the Reference Materials Section of the Level 34 Form P Series given Spring Semester of 1987. Determination of Mode, Median, Mean, Sum of Scores and Sum of Squared Scores.

GROUP A

NUMBER OF STUDENTS	% SCORES	SCORES SQUARED
1.	97	9409
2.	94	8836
3.	94	8836
4.	94	8836
5.	94	8836
6.	91	8281
7.	91	8281
8.	89	7921
9.	89	7921
10.	89	7921
11.	89	7921
12.	89	7921
13.	86	7379
14.	86	7379
15.	83	6889
16.	83	6889
17.	80	6400
18.	68	4624
19.	65	4225
20.	65	4225
21.	65	4225
22.	62	3844
23.	62	3844
	$EX_1 = 1905$	$EX_1^2 = 160877$

Mode = 89
Median = 89
Mean = $\overline{X}_1 = \frac{1905}{23} =$ 83

Sum of Scores = 1905

Sum of Squared Scores = 160877

TABLE 2

SRA Achievement Test Scores on the Reference Materials Section of Level 34 Form P Series given Spring Semester of 1987. Determination of Mode, Median, Mean, Sum of Scores and Sum of Squared Scores.

GROUP B

NUMBER OF STUDENTS	% SCORES	SCORES SQUARED
1.	94	8836
2.	94	8836
3.	91	8281
4.	89	7921
5.	89	7921
6.	86	7396
7.	83	6889
8.	83	6889
9.	83	6889
10.	80	6400
11.	80	6400
12.	77	5929
13.	77	5929
14.	77	5929
15.	74	5476
16.	74	5476
17.	71	5041
18.	68	4624
19.	47	2209
20.	47	2209
21.	44	1936
22.	44	1936
23.	30	900
	$\overline{\quad\quad}$	$\overline{\quad\quad}$
	$EX_2 = 1682$	$EX_2^2 = 130252$

Mode = 83/77
Median = 77
Mean = $\overline{X}_2 = \frac{16582}{23} =$ 73

Sum of Scores = 1682

Sum of Squared Scores = 130252

TABLE 3

Computational Process for Implementing a t-Test for Independent Samples.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{(SS_1 + SS_2)}{(n_1 + n_2 - 2)}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$SS_1 = EX_1^2 - \frac{(EX_1)^2}{n_1} \qquad SS_2 = EX_2^2 - \frac{(EX_2)^2}{n_2}$$

$$SS_1 = 160877 - \frac{(1905)^2}{23} \qquad SS_2 = 130252 - \frac{(1682)^2}{23}$$

$$SS_1 = 160877 - \frac{3629025}{23} \qquad SS_2 = 130252 - \frac{2829124}{23}$$

$$SS_1 = 160877 - 157784 \qquad SS_2 = 130252 - 123005$$

$$SS_1 = 3093 \qquad SS_2 = 7247$$

$$t = \frac{83 - 73}{\sqrt{\frac{(3093 + 7247)}{(23 + 23 - 2)}\left(\frac{1}{23} + \frac{1}{23}\right)}}$$

TABLE 3

$$t = \frac{10}{\sqrt{\frac{(10340)}{44}\ \frac{(2)}{23}}}$$

$$t = \frac{10}{\sqrt{\frac{(235)}{1}\ \frac{(2)}{23}}}$$

$$t = \frac{10}{\sqrt{\frac{470}{23}}}$$

$$t = \frac{10}{\sqrt{20.43}}$$

$$t = \frac{10}{4.52} = 2.21$$

Degrees of Freedom = $n_1 + n_2 - 2 = 23 + 23 - 2 = 44 = df$

Level of Confidence = .05 = p

df 44 Computed t = 2.21
df 40 Table t = 2.021
df 44 Interpolated Table = 2.019
2.21 > 2.02 - Null Hypothesis is rejected

In order to analyze the effectiveness of the experimental curriculum, an analysis of individual skills was made. The 34 item section on Reference Materials was divided into the seven major skills covered. The skills covered include Table of Contents, Encyclopedia, Card Catalog, Dictionary, Table Interpretation, Index and Map Reading. A ratio of number of problems correct to total number of problems on each skill was computed. On overall average for each skill for each group was determined (see Tables 4 and 5).

In comparing both groups on each skill, it is noted that Group A, the group taught with the "Pooh Step-By-Step Guide for Writing the Research Paper", scored higher in every area, than Group B that was taught research skills in a traditional method (see Figure 1). Group A scored 8% higher than Group B on Table of Contents skills. There was a 1% difference in Encyclopedia skills. Group A scored 12% higher than Group B on the skill of card catalog. Dictionary skills showed a 5% difference while Table Interpretation skills showed an 18% difference. Index skills showed a 9% difference and Map Reading showed Group A 18% ahead of Group B. Group A achieved at a higher level than Group B in each skill as well as overall performance on the Reference Materials portion of the SRA Achievement Test.

TABLE 4

Analysis of Test Results According to Specific Skills.

GROUP A

SKILLS	TABLE OF CONTENTS	ENCYCLOPEDIA	CARD CATALOG	DICTIONARY	TABLE INTERP.	INDEX	MAPS
PROBLEM #'s	1,2,3,19, 21,22	4,5,6	7,8,9	10,11,12,13, 14,15,16,17, 18	23,24,25 26	27,28, 29,30	31,32,33, 34
1.	7/7	3/3	3/3	8/9	4/4	4/4	4/4
2.	7/7	2/3	3/3	8/9	4/4	4/4	4/4
3.	7/7	1/3	3/3	9/9	4/4	4/4	4/4
4.	5/7	3/3	3/3	9/9	4/4	4/4	4/4
4.	5/7	3/3	3/3	9/9	4/4	4/4	4/4
5.	6/7	3/3	3/3	9/9	4/4	4/4	3/4
6.	6/7	3/3	3/3	7/9	4/4	4/4	4/4
7.	5/7	3/3	3/3	8/9	4/4	4/4	4/4
8.	5/7	3/3	3/3	7/9	4/4	4/4	4/4
9.	6/7	3/3	3/3	8/9	4/4	3/4	3/4
10.	6/7	3/3	3/3	6/9	4/4	4/4	2/4
11.	6/7	3/3	3/3	8/9	4/4	3/4	3/4
12.	5/7	3/3	3/3	8/9	4/4	4/4	3/4
13.	6/7	1/3	3/3	9/9	3/4	3/4	4/4
14.	4/7	3/3	3/3	7/9	4/4	4/4	4/4
15.	5/7	3/3	3/3	7/9	4/4	2/4	4/4
16.	4/7	3/3	3/3	7/9	3/4	4/4	2/4
17.	4/7	3/3	3/3	7/9	4/4	2/4	4/4
18.	4/7	2/3	3/3	4/9	4/9	4/4	3/4
19.	4/7	3/3	3/3	5/9	3/4	1/4	3/4
20.	5/7	2/3	3/3	5/9	2/4	1/4	4/4
21.	4/7	3/3	2/3	5/9	3/4	2/4	3/4
22.	6/7	2/3	3/3	5/9	3/4	2/4	0/4
23.	5/7	2/3	3/3	4/9	3/4	0/4	4/4
	122/161	60/69	68/69	160/207	83/92	71/92	79/92
	.757 76%	.869 87%	.985 99%	.772 77%	.902 90%	.771 77%	.858 86%

TABLE 5

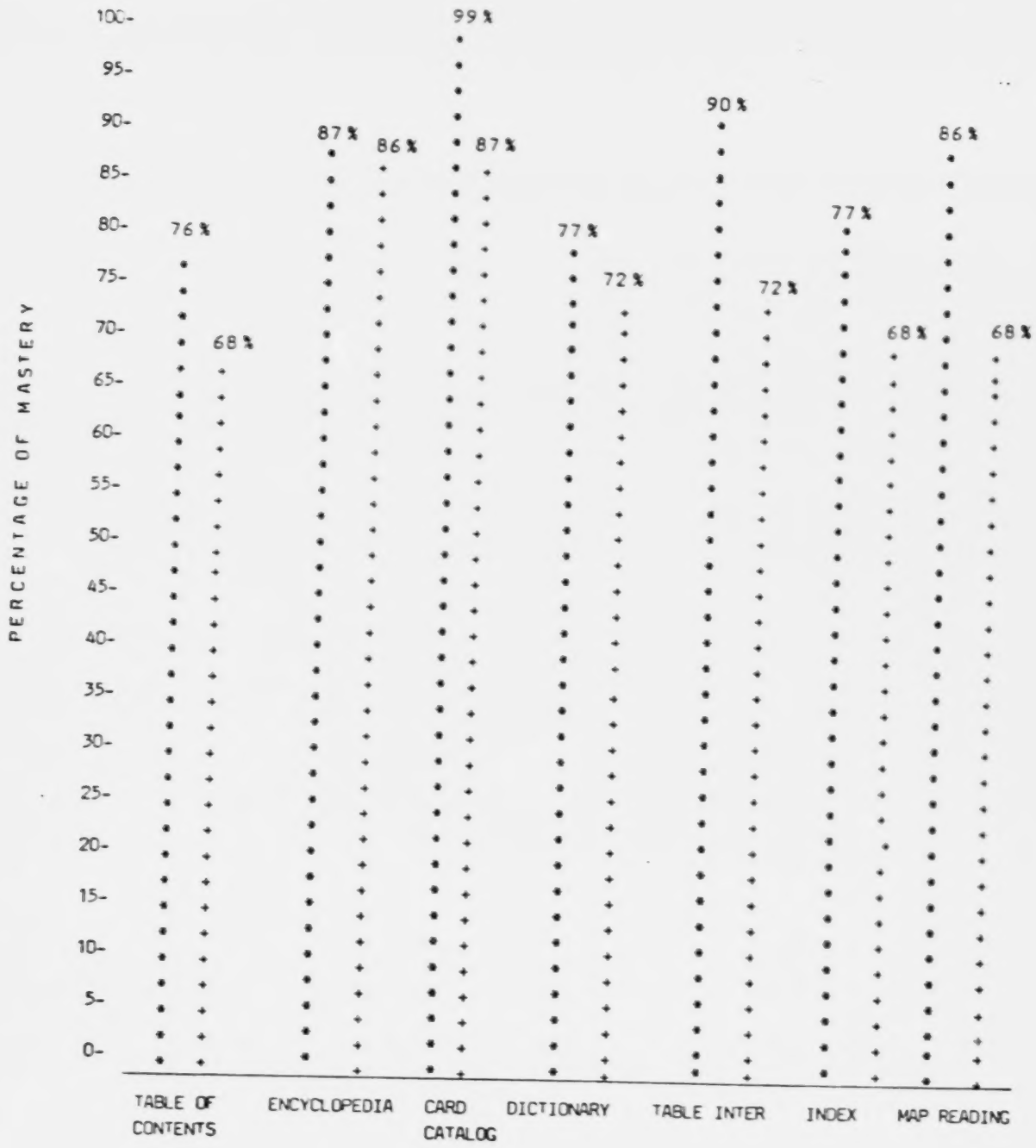
Analysis of Test Results According to Specific Skills.

GROUP B

SKILLS	TABLE OF CONTENTS	ENCYCLOPEDIA	CARD CATALOG	DICTIONARY	TABLE INTERP.	INDEX	MAPS
PROBLEM #'s	1,2,3,19, 20,21,22	4,5,6	7,8,9	10,11,12,13, 16,17,18	23,24, 25,26,	27,28 29,30,	31,32 33,34
1.	7/7	3/3	3/3	8/9	4/4	4/4	3/4
2.	6/7	3/3	3/3	9/9	3/4	4/4	4/4
3.	6/7	3/3	3/3	8/9	3/4	4/4	4/4
4.	6/7	3/3	3/3	6/9	4/4	4/4	4/4
5.	6/7	3/3	3/3	8/9	4/4	2/4	4/4
6.	5/7	3/3	3/3	6/9	4/4	4/4	4/4
7.	5/7	3/3	3/3	7/9	4/4	4/4	4/4
8.	5/7	3/3	3/3	6/9	3/4	4/4	4/4
9.	6/7	3/3	3/3	7/9	2/4	3/4	4/4
10.	5/7	2/3	3/3	7/9	3/4	3/4	4/4
11.	4/7	3/3	3/3	7/9	3/4	4/4	3/4
12.	4/7	3/3	3/3	8/9	2/4	3/4	3/4
13.	5/7	3/3	3/3	6/9	3/4	3/4	3/4
14.	4/7	2/3	3/3	6/9	3/4	4/4	4/4
15.	4/7	2/3	3/3	7/9	3/4	4/4	2/4
16.	2/7	3/3	3/3	6/9	4/4	4/4	3/4
17.	5/7	2/3	0/3	5/9	4/4	4/4	4/4
18.	4/7	2/3	3/3	8/9	4/4	0/4	2/4
19.	3/7	3/3	3/3	6/9	1/4	0/4	0/4
20.	3/7	3/3	2/3	6/9	2/4	0/4	0/4
21.	4/7	1/3	2/3	8/9	0/4	0/4	0/4
22.	6/7	3/3	0/3	3/9	2/4	1/4	0/4
23.	4/7	0/3	2/3	2/9	1/4	0/4	2/4
	109/161	59/69	60/69	150/207	66/92	63/92	63/92
	.677 68%	.855 86%	.869 87%	.724 72%	.717 72%	.684 68%	.684 68%

FIGURE 1

Comparison of Individual Skill Mastery Between Group A and Group B



* Denotes Group A - Taught process using "The Pooh Step-by-Step Guide for Writing Research"

\+ Denotes Group B - Taught in traditional manner of research instruction

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

A major goal of education is to provide students with the tools and skills necessary to access the volumes of information available today. The information explosion of the past century promises to continue at a phenomenal rate. A basis should be established from which educators can reinforce and expand student capabilities of self-instruction. Library and research skills must be understood, practiced, and processed repeatedly for students to feel confident in accessing known knowledge.

A process oriented instruction provides the actual hands-on practice necessary for students to understand independent pursuit of knowledge. In 1980, the Media Specialists of the Cypress Fairbanks Independent School District developed a curriculum for teaching library skills through group research. The title of the program is the "Pooh Step-By-Step Guide for Writing the Research Paper." The purpose of the study was to investigate the effectiveness of teaching library and research skills with a curriculum entitled the "Pooh Step-By-Step Guide for Writing the Research Paper." The study was designed to determine any significant difference between two average on level fourth grade groups of language arts students. Group A was taught library and research skills with the "Pooh Step-By-Step Guide for Writing the Research Paper." Group B was taught library and research skills in a traditional format. The findings, conclusions and recommendations deducted from

the study are reported below.

MAJOR FINDINGS

The research hypothesis for this study, stated in the null form, declared there would be no significant difference found in test scores of students subjected to the "Pooh Step-by-Step Guide for Writing the Research Paper" and students taught research using a traditional method of instruction. The hypothesis for the study was rejected. A significant difference was found between the two groups. A t-Test for Independent Samples was run using the test scores of the reference materials section of the SRA Achievement Test. A computed t of 2.21 was greater than the table t of 2.02 (see Table 3). Therefore, Group A, taught with the "Pooh Step-By-Step Guide for Writing the Research Paper" performed significantly higher than Group B that was taught research in a traditional method.

A comparison of scores on individual skills showed a higher percentage score earned by Group A than Group B on each skill. The range of scores by Group A ran from 1% to 18% higher than scores earned by Group B on each skill (see Figure 1).

CONCLUSION

The teaching of library and research skills is a curriculum area often avoided by teachers. Due to the many basic elements required in language arts on the elementary level, time runs out before teachers get to the skill of teaching students how to learn independently. The educational system would be enhanced if these skills could be taught

as foundation rather than addendum to curriculum.

The "Pooh Step-By-Step Guide for Writing the Research Paper" has been available to all C.F.I.S.D. elementary teachers for the past seven years. It has not been a mandatory element in the language arts continuum. The skills are required but the method of instruction is of independent teacher choice. The results of the study will serve in restating the effectiveness and success of this already developed curriculum. Hopefully more students in the C.F.I.S.D. will profit from its process oriented approach.

RECOMMENDATIONS

In considering recommendations for further study, the researcher would like to carry out further comparisons of scores between additional fourth grade language arts groups. Of further interest would be an expanded study by grade level. The use of third, fourth, and fifth grades would reveal what level the curriculum best meets student understanding.

Additional control of variables would provide for fewer questions in evaluating results. Monitoring of IQ and specification of exact instruction of Group B would stabilize credibility of the study. A follow up comparison of overall composite scores of the students involved would reveal any overall weaknesses between groups.

The data found is significant enough to encourage use of the "Pooh Step-By-Step Guide for Writing the Research Paper." It appears the basis of learning how to learn is available. It is now up to the educators to take advantage of it and use what already exists.

APPENDIX A

Request of Authorization
and Signature of
Approval

March 16, 1987

Mrs. Robbie Sheridan
Lieder Elementary School
17003 Kieth Harrow
Houston, Texas 77084

Dear Mrs. Sheridan:

I am currently a graduate student at Prairie View A & M University. In order to complete the course requirements for my Master's Seminar, I am conducting a study on the effectiveness of teaching research with "The Pooh Step-By-Step Guide for Writing the Research Paper" curriculum.

I will determine if an average on level fourth grade language arts group, taught research using "The Pooh Step-By-Step Guide for Writing the Research Paper" will score significantly higher on the reference material portion of the SRA Achievement Test, than a comparable group of fourth grade students taught research in a traditional manner. To accomplish this, I need your permission to review the SRA scores of the fourth grade students involved in the study. These scores will be the collected data for analysis in my research. All SRA score information will be kept confidential and there will be no use of student names in the report.

Your expeditious approval would be appreciated as I am under certain time constraints. Thank you for your help.

Sincerely,

Kris Dewees

Kris Dewees
Media Specialist

APPROVED Robbie Sheridan DATE 3-16-87

APPENDIX B

Curriculum Instrument

"The Pooh Step-By-Step Guide
For Writing The Research
Paper"

- BY -

GUIDE TO

WRITING THE RESEARCH PAPER

DEVELOPED BY

MEDIA SPECIALISTS

CYPRESS-FAIRBANKS INDEPENDENT SCHOOL DISTRICT

FALL/1980

STEP 1

Choose a subject that interests you or a subject suggested by your teacher.

Monsters

Football

Rocks

Ghosts

Coins

Motorcycles

Indians

Christmas in England

Race Cars

Explorers

World Series

Gems

Fashions

"Piglet, I think I'll do my report on a monster."

STEP 2

Look up your subject in three sources.

Encyclopedias

"Look in the reference section for help with these."

Books

"Hop on over to the card catalog to find your books."

Magazines

"Follow me, I'll show you the Reader's Guide."

STEP 3

Read the information through quickly.

Read it again.

Find the main ideas.

Reread the topic sentence in each paragraph.

Pick out the words and sentences that give details about the topic sentence.

DECIDE which ideas you need to remember....

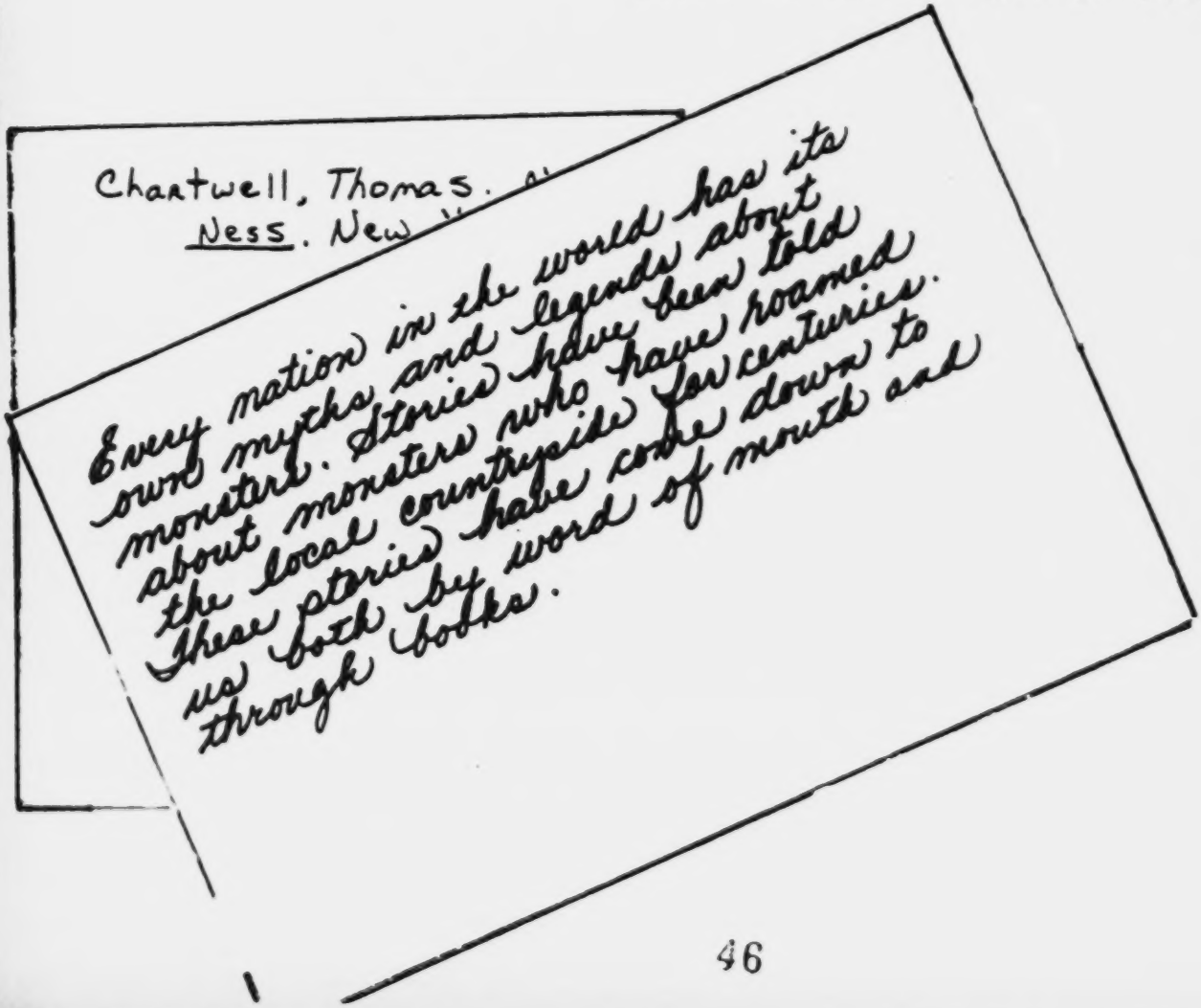
STEP 4

On a 4" x 6" index card, write in your own words the ideas you want to remember.

USE ONLY ONE SIDE.

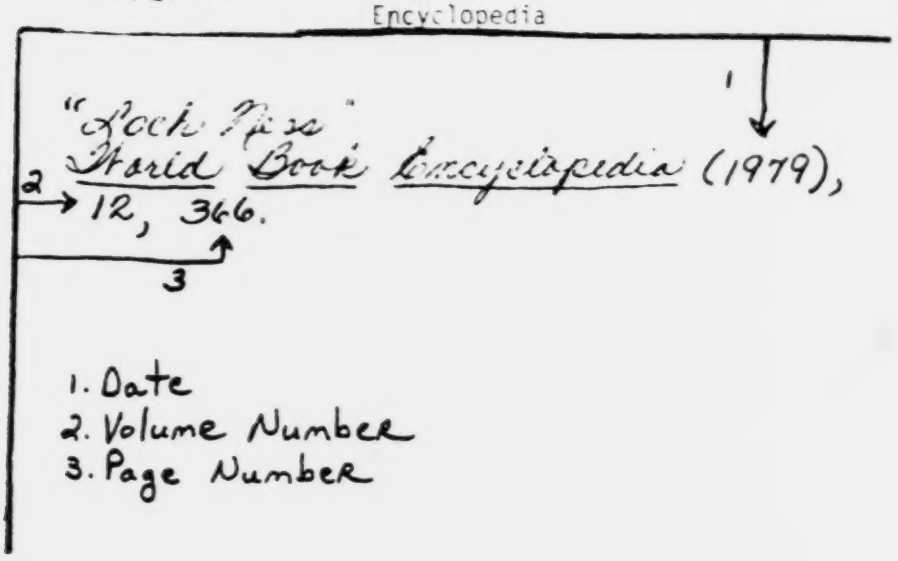
PUT ONLY ONE IDEA ON EACH CARD.

WRITE SOURCE ON BACK OF CARD.


Chartwell, Thomas.
Ness. New
Every nation in the world has its own myths and legends about monsters. Stories have been told about monsters who have roamed the local countryside for centuries. These stories have come down to us both by word of mouth and through books.

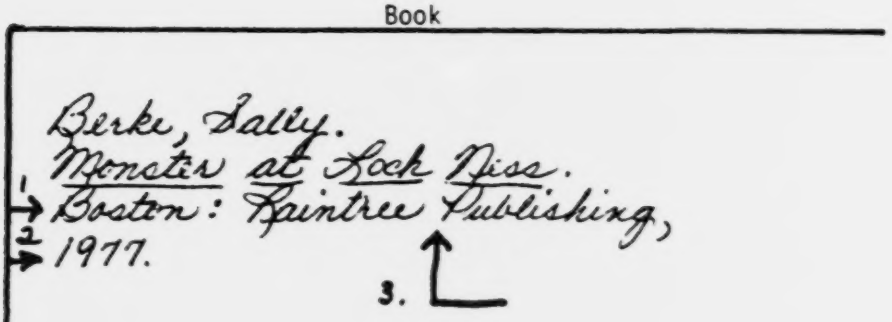
Make a bibliography card for each source you have used!!!

Encyclopedia



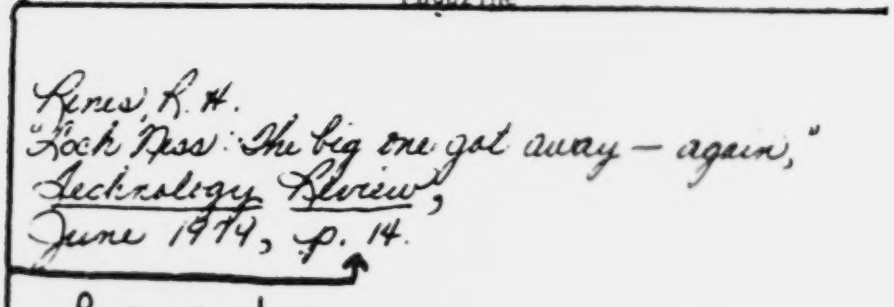
1. Date
2. Volume Number
3. Page Number

Book



1. Place of publication
2. Date
3. Name of publisher

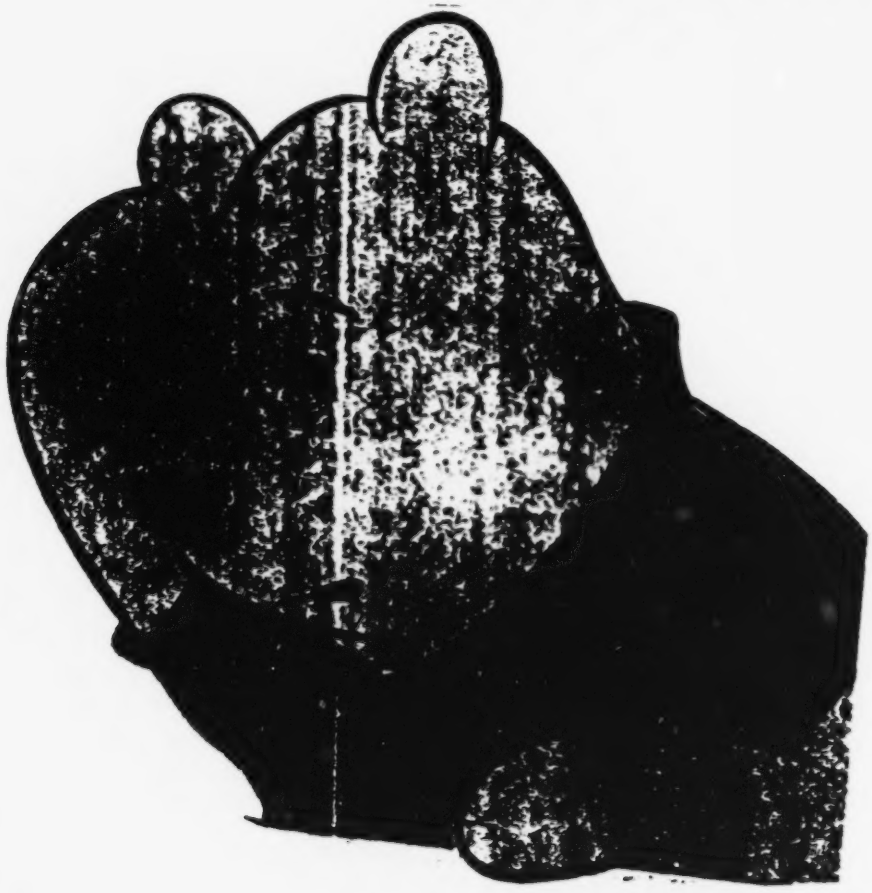
Magazine



Page Number

I. Reread all your note cards.

II. <u>In your own words</u>, write one good sentence that tells what your whole paper is about.



"You mean I have to tell what my whole paper is about in only one sentence?"

STEP 7

I. Choose the three most important ideas about your subject.

II. Arrange these three ideas in the order in which they happened in your notes.

III. Each of these three ideas will be a Roman numeral on your outline.

IV. Each of the Roman numerals will become a topic sentence for the three paragraphs in your paper.

V. Use details from your notes to explain each topic sentence.

VI. Look at the outline in the sample research paper at the end of Step 12. Follow the same form as you write your own outline.

"Three ideas, three topic sentences, and three paragraphs, now I think I've got it!"

STEP 3

I. In one good sentence, use the idea in Roman numeral I and write a topic sentence for the first paragraph.

II. From the details you have listed under Roman numeral I, finish writing the first paragraph.

"I sure hope I get a good grade."

III. Write topic sentences and paragraphs for Roman numerals II and III.

IV. Write a good sentence at the end of your third paragraph. This sentence will <u>explain</u> <u>again</u> the main idea of your paper.

STEP 9

I. Look over your rough draft for spelling and punctuation errors.

"Use the dictionary if you have to Pooh."

II. Write the final copy of your research paper in your very best handwriting.

III. Indent the first sentence on the third blue line from the top of your notebook paper.

IV. Remember -- write your paragraphs <u>inside</u> the left and right margins of your notebook paper.

STEP 10

I. Look at the sample research paper at the end of the unit.

II. Find the sixth sentence in the first paragraph.

III. Notice the quotation (" ") marks and the small 1 written in the top half of the writing space just outside the quotation marks at the end of the sentence.

IV. The number and marks mean that this is the first copied idea or fact in your paper. It tells the reader of your research paper the idea as written belonged to someone else first; you are just borrowing the idea.

V. Give the owner of the idea credit for it by writing a footnote. See the footnote example on the next page.

"Be sure to tell whoooo you got the idea from!"

FOOTNOTES

1. Thomas Chartwell, Nessie of Loch Ness (New York: Morrow, 1975), 21.

2. William K. Gregory, "The Loch Ness Monster," Natural History, 89 (April 1980), 130-131.

3. "Loch Ness," World Book Encyclopedia (1978), 12, 366.

PUNCTUATE AND INDENT EXACTLY LIKE THIS EXAMPLE

STEP 11

"You mean it has to be exactly like the sample."

I. Find the first blue line at the top of a clean sheet of notebook paper.

II. In the middle of that line, write the word Bibliography. (Capitalize the word, but do not underline the word or put it inside quotation marks.)

III. Now alphabetize your bibliography cards by the authors' last name or the first word on the card. (If the first word is A, An, or The, alphabetize by the next word.)

IV. Look at the sample Bibliography on the next page. Does your Bibliography look like this one at the top? If not, correct your errors.

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Chartwell, Thomas. Nessie of Loch Ness. New York: Morrow, 1976.

Gregory, William K. "The Loch Ness Monster," Natural History, 39 (April 1980), 130-131.

"Loch Ness," World Book Encyclopedia, 12 (1978), 366.

"The Bibliography must be in alphabetical order. Let's see, that's A, B, C ..."

STEP 12

I. Look at the kinds of information written on the sample cover page. On a clean sheet of notebook paper, write a cover page for your research paper. Make your cover sheet exactly like the sample.

II. Staple all the parts of the research assignment together. They should be stapled in the following order:

1. Cover page
2. Outline
3. Research Paper
4. Footnote Page
5. Bibliography

"Even a tigger can do a research paper."

TITLE OF PAPER

BY

NAME OF STUDENT

SUBJECT AND GRADE

SCHOOL

DATE

THE LOCH NESS MONSTER

I. History of the Loch Ness Monster

   A. Legends about monsters
   B. Earliest sightings of the monster at Loch Ness
   C. Photographs of Nessie

II. Expeditions to Loch Ness

   A. Diving expeditions to Loch Ness
   B. First descriptions of the monster
   C. Later drawings of the monster

III. Discoveries made by explorers

   A. Divers discover caves
   B. Theory that creatures might live in caves
   C. Explanation of dark waters of Loch Ness

For hundreds of years in every country throughout the world, people have told stories about monsters on land or in the sea. Although many creatures were described as terrifying and destructive, some were seen as harmless. Scotland is one country made famous by tales of a large, yet harmless creature. Scotland's monster lives in a lake, Loch Ness. The earliest record of the Loch Ness monster appeared in the 500's. "Earliest records indicate the Loch Ness monster frequently surfaced to sun itself on the shores of Loch Ness."[1] More recent reports say that the monster has no interest in going onto shore. Nessie, as the creature is called today, earned worldwide fame in the 1940's when someone claimed to have taken her picture. Since that time, descriptions of Nessie have all agreed with one another.

Many expeditions have been made to Loch Ness in search of the monster. The earliest expeditions to Loch Ness caused some strange descriptions of Nessie. Artists and explorers pictured Nessie as a "giant salamander."[2] Later drawings revealed Nessie as a dragon-like monster. More recent descriptions show Nessie as a combination of several reptiles and mammals. Before the invention of the camera, people were satisfied with artists' sketches. Today, people are more likely to believe a photograph of Nessie than they would believe a sketch. Most people, however, will believe Nessie exists only if they see her first-hand. For this reason, diving expeditions were sent to Loch Ness to hunt the monster and force her to the water's surface so others might see her. Even today, people sit patiently on the shores of Loch Ness, waiting for Nessie to surface.

Although no diving expeditions actually saw a monster, many discoveries were made by the explorers who went to Loch Ness. They discovered huge caves below the surface of Loch Ness. They believe it is possible for a fish-like mammal of great size to live in the caves protected from the eyes of divers and the hooks of fishermen. The water of Loch Ness is very dark and rough. Some people think that a school of the creatures stirs up the mud from the lake bottom as they walk or swim about in the lake. This might explain the rough and muddy water. Although many people say they have seen Nessie, most scientists doubt that Nessie really exists. Even photographs of Nessie are probably optical illusions. "The Loch Ness monster has never been found and no one yet knows whether it is real or a hoax,"[3] say researchers for Natural History magazine. The legend of Nessie has existed since the 500's and is not likely to die in the 1980's.

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